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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/485,082 04/19/00 WYDRA

G P-00.0001

IM52/0122

EXAMINER

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PATENT DEPARTMENT  
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BARR, M

ART UNIT	PAPER NUMBER
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1762

*7*

DATE MAILED:

01/22/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/485,082	WYDRA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Michael Barr	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-3, 8 and 10-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-3, 8, 10-24 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

#### Attachment(s)

- |   |  |
|---|--|
| 15) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 16) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)              | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>1</u> . | 20) <input type="checkbox"/> Other: _____.                                   |

**DETAILED ACTION**

***Pre-Amendment***

1. The examiner acknowledges the cancellation of Claims 4-7 and 9, and the addition of Claims 10-24. Claims 1-3, 8, and 10-24 are pending.

***Drawings***

2. Please note that the draftsperson has objected to the drawings.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-3, 8, and 10-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 cites the limitation of “alitizing”. The term “alitizing” is not widely known in the art and thus its meaning is not entirely clear to the examiner. It appears that the applicant intends for “alitizing” to refer to a process of aluminizing a surface by diffusion at high temperatures. The examiner is prosecuting the claims with this interpretation of the word “alitizing”. However, factual evidence to actual meaning of this term is required to clearly and distinctly define the claimed subject matter.

Claim 1 cites the limitation of “the adhesion layer” in step d). However, it is not clear as to what the adhesion layer is, in terms of the remainder of the claim. Is the adhesion layer the slip layer, the alitized slip layer, or some other yet unnamed layer? Please clarify.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 8, and 10-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson et al. in view of Rigney.

Olson et al. teaches forming a coated substrate, where the substrate, such as nickel based alloy, is coated with a layer of MCrAlY, such as NiCoCrAlY, which is then aluminized by a heat diffusion process, such as heating at 1875 °F (1023 °C) for 3 hours and then heating at 1975 °F (1079 °C) for 4 hours (Col. 4, lines 9-46; Example I). This aluminizing process reads on the claimed alitizing step, as presently interpreted by the examiner. Olson et al. teaches that the layer of MCrAlY can be applied by a slurry deposition process (Col. 7, lines 40-45). Olson et al. does not teach any specific parameters of the slurry deposition process. It would have thus been obvious to one skilled in the art to use any conventional slurry deposition process to form a layer of MCrAlY, with the expectation of achieving the desired layer results in Olson et al.

Rigney teaches forming a layer, such as a MCrAlY, on a substrate, where metal powders (43-147 micron sized) are mixed with a binder into a slurry (slip) and applied to the

substrate by spraying, brushing, or dipping, dried at room temperature, and then heated (sintered) at temperatures between 1800-2300 °F (982-1260 °C), for times including 0.25-10 hours, in a vacuum or inert atmosphere (Col. 2, line 1-Col. 5, line 33; Table III). It would have been obvious to one skilled in the art to perform the MCrAlY slurry deposition of Olson et al. in a manner consistent with that described by Rigney (i.e. using the same materials and process specifications), with the expectation of achieving the desired MCrAlY layer in Olson et al., since it is shown by Rigney that such a slurry deposition process is known and conventional in the art for forming MCrAlY layers.

Olson et al. and Rigney do not teach that the alitized layer has a grain size less than 75 microns and a cavity proportion of 0-40%. However, since the process suggested by the combination of Olson et al. and Rigney teach the same materials, process steps, and parameters, as those claimed by the applicant, it is the examiner's position that the alitized layer of Olson et al. and Rigney would have inherently had the claimed grain size and porosity characteristics. If this is not the case, then it must be due to critical limitations not being claimed. Please note that Fig. 2 of Olson et al. appears to show the alitized layer being less than 40% porous.

Olson et al. does not specifically teach that the alitized layer is to be an adhesion layer for a heat insulation layer. However, this is merely the intended use of the layer produced by the claimed process. Furthermore, it is well established in the art to use an aluminized MCrAlY layer as an adhesion layer for thermal barrier coatings, and thus would have been an obvious use for the coating formed by Olson et al. and Rigney, for one of ordinary skill in the art.

Rigney does not teach the drying time for drying the slurry applied to the substrate. However, it would have been obvious to one skilled in the art to perform the drying procedure in

the most economical and optimal manner possible, and thus optimize the drying temperature and times, in order to insure an effective and speedy drying without adversely effecting the remaining slurry material left after the drying. Such drying parameters, including those claimed, would have been obvious to one of ordinary skill in the art, through routine experimentation.

Rigney does not teach that the heat treating of the slurry is performed in an argon atmosphere. However, as indicated above, Rigney does teach performing the heat treating in an inert atmosphere. Those having ordinary skill in the art would have recognized that argon is a well known and conventional inert atmosphere gas, for use in heat treating processes, and thus would have found it obvious to use as the inert atmosphere in the process of Rigney.

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Rickerby et al. and Perdikaris are cited as prior art of interest.

Rickerby et al. teaches using an aluminized MCrAlY layer as an adhesion layer for thermal barrier coatings.

Perdikaris teaches a MCrAlY coating having a porosity of 1-2 %.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Barr whose telephone number is 703-305-7919. The examiner can normally be reached on Monday-Thursday 6:30 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 703-308-2333. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Michael Barr  
Examiner  
Art Unit 1762

MB

January 16, 2001



Shirley Beck  
Supervisory Patent Examiner  
Technology Center 1700